



# Application Guide

H8951-Link Backup-WLAN/ModemV1.0.doc



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## Revision History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Doc Version	Product	Release Data	Details
V1.0	Hongdian Router	2017.08.21	First Release

# 1 Overview

Hongdian 3G/4G Router provides WLAN/Modem link backup for the field application which may need the WLAN connection as main link, and the 3G/4G wireless connection as backup link, so as to make sure the stable connection.

Here we introduce the settings that WLAN link as main, modem link as backup. The converse of main and back link is also OK.

## 2 Description

1. We finish the settings about wlan and modem, make wlan and modem both connecting, wlan setting as below show, modem port is according to your custom.

WLAN:

The screenshot shows the router's web interface with the 'Status' tab selected. The 'WLAN' sub-tab is also selected. The 'Basic Information' section displays the following details:

Status	connected
Work Mode	station
SSID	MC.SVN
Channel	6
IP Address	192.168.43.190
Mask	255.255.255.0
Gateway	192.168.43.106
Primary DNS	192.168.43.106
Secondary DNS	
MAC Address	06:50:C2:03:A8:FB
BSSID	CE:8E:9D:4B:A7:89


A 'Refresh' button is located at the bottom of the configuration area. On the right side, there is a 'Help' section with the text: 'Display: This page displays basic WLAN configuration.'

Modem:

Network IPv6 Applications VPN Forward Security System **Status** Logout

Basic System Information LAN WAN WLAN Modem Routing Table Traffic Statistics Help

**Modem**

Modem Select	0
Up Time	1249 seconds
Modem Status	connected
Network Type	fdd-lte
Signal	 (25)
IP Address	10.145.115.167
DNS	120.196.165.7
SIM Select	sim1
SIM Status	ready
SIM ICCID	89860000191988380301
SIM IMSI	460020175030254
LAC	10138
CELL ID	53750415
RSRP	-95
SINR	6
Operator	CHINA MOBILE
Band	LTE BAND 3

**Display:**  
This page displays cellular modem status.

2. If your Network Type settings has changed, please recover to the following.

Network Applications VPN Forward Security System Status

LAN WAN WLAN Modem Parameter Select Network Type Link Backup DHCP Server

Default Route

DNS Type

Interface Name

Save Refresh

3. We use Link Backup feature, as following:

Network Applications VPN Forward Security System Status

LAN WAN WLAN Modem Parameter Select Network Type Link Backup DHCP Server

Rule Name	Running Mode	Backup Mode	Operation			
0	main	hot	Mod	Del	En	Dis
1	backup	hot	Mod	Del	En	Dis

Add Refresh

main link.

Rule0 is for checking eth1, if wlan link fail, the link will switch to backup link.

Network IPv6 Applications VPN Forward Security System Status Logout

LAN WAN WLAN Modem Parameter Select Network Type Link Backup Link Switch DHCP Server

Help

Status

Rule Name  \* 0-9

Running Mode

Backup Mode

Running Timeout  1-65535 s

Interface Name

Check Mode

Check IP or Domain  Max length is 64

Normal Interval  1-65535 s

Retry Times  1-65535

**Note:**  
Rule 1~9 can act as backup link only, while rule 0 can act as both main or backup link. When multiple backup links are setup, the priority is based on rule number. Smaller number is with higher priority.

If the newly added rule name already exists, then the original configuration parameter will be overwritten.

If the newly added interface name already exists, then the configuration parameter, this article will be deleted.

**Running Timeout:**  
If the main link, the stable time of the main link; If for the backup link, said the link the shortest working hours.

**Information:**  
The sim\_select, linkswitch, linkbackup, icmpcheck, Schedule could not work at same time.

The modem rule in used could not be deleted.

Note: If don't want backup link switch to main link immediately when main link is back, can setup the Running Timeout setting. The time means unless the main link works for that specific time, link should not switch back to

Rule1 is for checking modem, When Main link is back, the link will switch to main link.

Network		IPv6	Applications	VPN	Forward	Security	System	Status	Logout
LAN	WAN	WLAN	Modem	Parameter Select	Network Type	Link Backup	Link Switch	DHCP Server	
<div style="text-align: right;"><a href="#">Help</a></div>									
Status		<input type="button" value="Enable"/> <input type="button" value="Disable"/>							
Rule Name	<input type="text" value="1"/>	* 0-9							
Running Mode	<input type="text" value="backup"/>								
Backup Mode	<input type="text" value="hot"/>								
Running Timeout	<input type="text"/>	1-65535 s							
Interface Name	<input type="text" value="modem 0"/>								
Check Mode	<input type="text" value="icmp"/>								
Check IP or Domain	<input type="text"/>	Max length is 64							
Normal Interval	<input type="text"/>	1-65535 s							
Retry Times	<input type="text"/>	1-65535							
		<input type="button" value="Save"/> <input type="button" value="Return"/>							
<p><b>Note:</b> Rule 1~9 can act as backup link only, while rule 0 can act as both main or backup link. When multiple backup links are setup, the priority is based on rule number. Smaller number is with higher priority.</p> <p>If the newly added rule name already exists, then the original configuration parameter will be overwritten.</p> <p>If the newly added interface name already exists, then the configuration parameter, this article will be deleted.</p> <p><b>Running Timeout:</b> If the main link, the stable time of the main link; If for the backup link, said the link the shortest working hours.</p> <p><b>Information:</b> The sim_select, linkswitch, linkbackup, icmpcheck, Schedule could not work at same time.</p> <p>The modem rule in used could not be deleted.</p>									

4. We add MASQ about eth1 and modem.

**NAT Service**

**MASQ**

Interface	Operation
eth1	<input type="button" value="Mod"/> <input type="button" value="Del"/>
modem	<input type="button" value="Mod"/> <input type="button" value="Del"/>

**SNAT**

Protocol	Original Address	Original Port	Mapping Address	Mapping Port	Operation

**DNAT**

Protocol	Original Address	Original Port	Mapping Address	Mapping Port	Operation

**DMZ**

Interface	Mapping Address	Operation

**Help**

**NAT/NAPT:**  
NAT is the abbreviation of Network Address Translation. It maps the external IP address to a host or terminal in your LAN. It isolates unidentified data envelopes to guard the LAN against hacker's attack. When the Original and Mapping ports are empty, DMZ can be configured by DNAT. To use DMZ, first setup NAT to keep the remote http access port on the device.

**MASQ:**  
By default, the router translates the source IP addresses passing from the private segment to the public segment. However, the router will disable the IP address masqueraded over the specified interface.

Please delete the default setting in page>>Forward>>Routing. When using link backup feature, this setting should be empty.

**IPv4 Router**

Route Type	Network	Gateway	Priority	Operation

**Help**

**Note:**  
A static route is a pre-determined pathway that network information must travel to reach a specific host or network. Policy route is designed for source routing, and it is prior to static route. The bigger number the lower priority.

After that, the link backup setting is done, you will see the default route is eth1, refer to pic1, if wan link fail, the link will switch to modem link, you will see the default route is modem, refer to pic2

pic1

Network IPv6 Applications VPN Forward Security System **Status** Logout

Basic System Information LAN WAN WLAN Modem **Routing Table** Traffic Statistics

Help

**Static Route**

Network	Subnet Mask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	192.168.43.106	eth1	1
10.145.115.160	255.255.255.240	0.0.0.0	modem	0
192.168.8.0	255.255.255.0	0.0.0.0	br0	0
192.168.10.0	255.255.255.0	0.0.0.0	eth0	0
192.168.43.0	255.255.255.0	0.0.0.0	eth1	0

**Policy Route**

Network	Subnet Mask	Gateway	Interface	Priority
192.168.43.190	255.255.255.255	192.168.43.106	eth1	32765

**IPv6 Router**

Network	Subnet Mask	Gateway	Interface	Metric
::	::	::	modem	1024

Refresh

**Display:**  
This page displays system's current routing table. There will be one default route status displayed when the link backup function is enabled. See Network configuration; Link Backup.

pic2

Network IPv6 Applications VPN Forward Security System **Status** Logout

Basic System Information LAN WAN WLAN Modem **Routing Table** Traffic Statistics

Help

**Static Route**

Network	Subnet Mask	Gateway	Interface	Metric
0.0.0.0	0.0.0.0	10.145.115.168	modem	1
10.145.115.160	255.255.255.240	0.0.0.0	modem	0
192.168.8.0	255.255.255.0	0.0.0.0	br0	0
192.168.10.0	255.255.255.0	0.0.0.0	eth0	0

**Policy Route**

Network	Subnet Mask	Gateway	Interface	Priority
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**IPv6 Router**

Network	Subnet Mask	Gateway	Interface	Metric
::	::	::	modem	1024

Refresh

**Display:**  
This page displays system's current routing table. There will be one default route status displayed when the link backup function is enabled. See Network configuration; Link Backup.

PS: about the linkbackup total switch time instruction:



```

14-Jul 11:... <30>Jul 14 11:38:12 linkbackup[6632]: ##### rule[0], main link[eth0], icmp check begin #####(linkbackup.c->1233) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:12 linkbackup[6632]: **** ICMP send icmp packet successful ****(icmp.c->219) 192.168.8.1
14-Jul 11:... <31>Jul 14 11:38:15 time[250]: ntpclient -h ntp.sjtu.edu.cn -s return 14(time.c->111) 192.168.8.1
14-Jul 11:... <27>Jul 14 11:38:15 time[250]: NTP failed!(time.c->302) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:15 linkbackup[6632]: rcv_icmp_pack:select time out(icmp.c->79) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:15 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****(icmp.c->299) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:17 linkbackup[6632]: **** ICMP send icmp packet successful ****(icmp.c->219) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 time[250]: last ntp failed, do ntp(time.c->188) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 linkbackup[6632]: rcv_icmp_pack:select time out(icmp.c->98) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****(icmp.c->299) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 linkbackup[6632]: **** ICMP send icmp packet successful ****(icmp.c->219) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 cloud_agent[6409]: cloud_agent version:140711-3.0.3[11-3.0.3](wmmp_main.c->216) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 cloud_agent[6409]: initialization failed, reset cloud_agent, initialize cloud_agent again(wmmp_main.c->... 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:24 cloud_agent[6691]: cloud_agent version:140711-3.0.3[11-3.0.3](wmmp_main.c->216) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:25 linkbackup[6632]: rcv_icmp_pack:select time out(icmp.c->98) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:25 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****(icmp.c->299) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:27 linkbackup[6632]: ##### rule[0], main link[eth0], icmp check end #####(linkbackup.c->1235) 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:27 linkbackup[6632]: now checking rule[0], check main link[eth0] ret[-2](0:success, <0:failed)(linkbackup... 192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:28 linkbackup[6632]: switch from [rule:0] main [link:eth0] to [rule:1] backup [link:modem](linkbackup.c->... 192.168.8.1

```

From the log, the linkbackup switch from start to end, total cost 15s(retry time is 3), so every linkbakcup every check time cost 5s, we can draw the linkbakcup total switch time range is

Min: 5s\*retry time<= linkbackup total switch time <= Max: normal interval+5s\*retry time





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